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veronica.thompson@bayerbms.com  
bm spatents@bayerbms.com  
donna.veatch@bayerbms.com

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* HORST BERNETH, THOMAS BIERINGER,  
JOHANNES EICKMANS, WOLFGANG JACOBSEN,  
and SERGUEL KOSTROMINE

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Appeal 2010-000705  
Application 10/089,358  
Technology Center 1700

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Before EDWARD C. KIMLIN, BEVERLY A. FRANKLIN, and  
KAREN M. HASTINGS, *Administrative Patent Judges*.

HASTINGS, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

<sup>1</sup> US 5,130,291 to Okuda issued July 14, 1992.

Appellants appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1-5, 7-9, 12-18, and 29-30.<sup>2</sup> We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

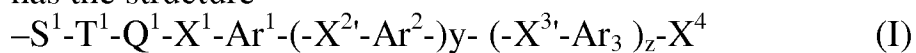
## BACKGROUND

Claim 1 is illustrative of the invention and is reproduced below:

1. Process for the optical writing and optical reading of digital information in a two-dimensional extended storage medium, the process comprising the steps of:

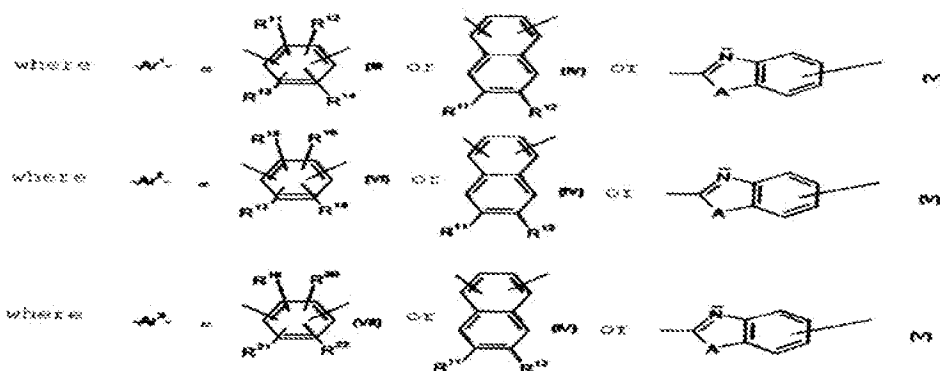
1) modifying by optical writing the surface topography of a storage medium so that a depression of at least 10 nm and a width, measured on the original surface, of less than 10  $\mu\text{m}$  is achieved in one direction, wherein the writing is carried out using a focused laser beam with an energy density of a light pulse between 1  $\text{mJ}/\text{cm}^2$  and 100  $\text{J}/\text{cm}^2$  and with an intensity of between 0.15 mW and 100 mW, and

2) optically reading the digital information on the storage medium by detecting changes in the surface topography, wherein the reading is carried out with an optical imaging system which can detect interference between beam portions originating from parts of the scanned sample spot lying at different depths, and wherein as light-active polymer films side-chain polymers, optionally block polymers and/or graft polymers are used, to which dyes are bound as side chains via a STQ-spacer (formula I) and dimensionally anisotropic groups are likewise bound via a STQ-spacer (formula II), wherein formula I has the structure



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<sup>2</sup> Claims 19-24, 27, and 28 have been withdrawn (Br. 2).



in which

y denotes 1 or 2,

z denotes 0, 1 or 2 and

X<sup>2'</sup> and Ar<sup>2</sup> and/or X<sup>3'</sup> and Ar<sup>3</sup> may have different meanings, if y and/or z denote 2,

A denotes O, S or N-C<sub>1</sub>- to C<sub>4</sub>-alkyl,

Q<sup>1</sup> denotes -O-, -S-, -(N-R<sup>5</sup>)-, -C(R<sup>6</sup>R<sup>7</sup>)<sub>p</sub>-, -(C=O)-, -(O-CO)-, -(NR<sup>5</sup>-CO)-, -(SO<sub>2</sub>)-, -(O-SO<sub>2</sub>)-, -(NR<sup>5</sup>-SO<sub>2</sub>)-, -(C=NR<sup>8</sup>)-, -(CNR<sup>8</sup>.NR<sup>5</sup>)-, -O-C<sub>6</sub>H<sub>5</sub>-COO- or a bivalent radical of the formula



T<sup>1</sup> denotes -(CH<sub>2</sub>)<sub>p</sub>-, wherein the chain may be interrupted by -O-, -NR<sup>9</sup>-, or -OSiR<sup>10</sup><sub>2</sub>O- and may be substituted by methyl,

S<sup>1</sup> denotes a direct bond, -O-, -S- or -NR<sup>9</sup>-,

P denotes an integer from 2 to 12, preferably 2 to 8, in particular 2 to 4,

R<sup>9</sup> denotes hydrogen, methyl, ethyl, or propyl,

R<sup>10</sup> denotes methyl or ethyl,

$R^{11}$  to  $R^{22}$  independently of one another denote hydrogen or a non-ionic substituent,

$X^4$  denotes hydrogen, halogen, cyano, nitro,  $OF_3$ ,  $CCl_3$ ,  $-COO-C_1-$  to  $C_4$ -alkyl or  $X^4-R^4$ ,

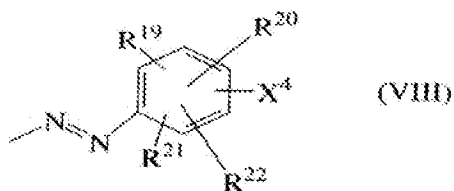
$X^{1'}$ ,  $X^{2'}$ ,  $X^{3'}$  and  $X^{4'}$  denote a direct bond,  $-O-$ ,  $-S-$ ,  $-(N-R^5)-$ ,  $-C(R^6R^7)-$ ,  $-(C=O)-$ ,  $-(CO-O)-$ ,  $-(CO-NR^5)-$ ,  $-(SO_2)-$ ,  $-(SO_2-O)-$ ,  $(SO_2-NR^5)-$ , or  $-(CNR^8-NR^5)-$  and

$X^{2'}$  and  $X^{3'}$  may in addition denote  $-(C=NR^8)-$ ,  $-(N=N)-$  and at least one of the groups  $X^{2'}$  or  $X^{3'}$  denotes  $-N=N-$ ,

$R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$  and  $R^8$  independently of one another denote hydrogen,  $C_1-$  to  $C_4$ -alkyl, or  $C_6-$  to  $C_{10}$ -aryl and

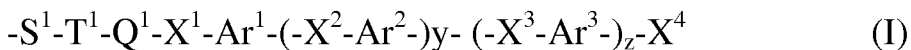
$R^4$  and  $R^5$  in addition independently of one another denote  $C_1-$  to  $C_{20}$ -alkyl- $(C=O)-$ ,  $C_3-$  to  $C_{10}$ -Cycloalkyl- $(C=O)-$ ,  $C_2-$  to  $C_{20}$ -alkenyl- $(C=O)-$ ,  $C_6-$  to  $C_{10}$ -aryl- $(C=O)$ ,  $C_1-$  to  $C_{20}$ -alkyl- $(SO_2)-$ ,  $C_3-$  to  $C_{10}$ -cycloalkyl- $(SO_2)$ ,  $C_2-$  to  $C_{20}$ -alkenyl- $(SO_2)-$  or  $C_6-$  to  $C_{10}$ -aryl- $(SO_2)$ , wherein

by the term non-ionic substituents are understood halogen, cyano, nitro,  $C_1-$  to  $C_{20}$ -alkyl,  $C_1-$  to  $C_{20}$ -alkoxy, phenoxy,  $C_3-$  to  $C_{10}$ -cycloalkyl,  $C_2-$  to  $C_{20}$ -alkenyl,  $C_6-$  to  $C_{10}$ -aryl,  $C_1-$  to  $C_{20}$ -alkyl- $(C=O)-$ ,  $C_6-$  to  $C_{10}$ -aryl- $(C=O)-$ ,  $C_1-$  to  $C_{20}$ -alkyl- $(SO_2)-$ ,  $C_1-$  to  $C_{20}$ -alkyl- $(C=O)-O-$ ,  $C_1-$  to  $C_{20}$ -alkyl- $(C=O)-NH-$ ,  $C_6-$  to  $C_{10}$ -aryl- $(C=O)-NH-$ ,  $C_1-$  to  $C_{20}$ -alkyl- $O-(C=O)-$ ,  $C_1-$  to  $C_{20}$ -alkyl- $NH-(C=O)-$ ,  $C_6-$  to  $C_{10}$ -aryl- $NH-(C=O)-$  or a radical of the formula



and the alkyl, cycloalkyl, alkenyl and aryl radicals in turn may be substituted by up to 3 radicals from the group comprising halogen, cyano, nitro,  $C_1-$  to  $C_{20}$ -alkyl,  $C_1-$  to  $C_{20}$ -alkoxy,  $C_3-$  to  $C_{10}$ -cycloalkyl,  $C_2-$  to  $C_{20}$ -alkenyl or  $C_6-$  to  $C_{10}$ -aryl, and the alkyl and alkenyl radicals may be straight-chain or

branched, and by the term halogen is understood fluorine, chlorine, bromine and iodine, and formula II is described by



wherein the above substituent definitions (formula I) are also valid for formula II, with the proviso that none of the groups  $X^2$  or  $X^3$  may denote -N=N- and  $R^{11}$  to  $R^{22}$  may not denote a radical of the formula (VIII).

The Examiner rejected claims 1-4, 7-9, 12, 13, 15-18, 29, and 30 under 35 U.S.C. § 103(a) as unpatentable over the combined prior art of Elmasry<sup>3</sup>, Berneth<sup>4</sup>, Andruzzi<sup>5</sup>, Howe,<sup>6</sup> and Savant<sup>7</sup>.

The Examiner rejected claims 1-5, 7-9, 12-18, and 29, 30 under 35 U.S.C. § 103(a) as being unpatentable over the combined prior art of Elmasry, Berneth, Andruzzi, Howe, and Savant, further with Nimomiya<sup>8</sup> or Akashi<sup>9</sup>.

Appellants state that all of the rejected claims in each rejection “stand or fall together” (Br. 5, 6). Accordingly, we select claim 1 as representative.

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<sup>3</sup> US 4,666,819, issued May 19, 1987.

<sup>4</sup> WO 97/44365, published November 27, 1997.

<sup>5</sup> “Holographic gratings in azobenzene side chain polymethymethacrylates”, Macromol, Vol. 32, pp. 448-454 (01/1999).

<sup>6</sup> US 4,336,545, issued June 22, 1982.

<sup>7</sup> US 5,384,221, issued January 24, 1995.

<sup>8</sup> US 5,691,092, issued November 25, 1997.

<sup>9</sup> EP 0 699 548, issued August 30, 1995.

## ISSUE

Did the Examiner err in determining that the combined teachings of the applied prior art would have rendered obvious the optical writing and reading method required by claim 1 within the meaning of § 103?

We decide this issue in the negative.

## PRINCIPLE OF LAW

“[O]ne cannot show non-obviousness by attacking references individually where ... the rejections are based on combinations of references.” *In re Keller*, 642 F.2d 413, 426 (CCPA 1981).

## ANALYSIS

### With Factual Findings

We rely on and adopt the Examiner’s factual findings and reasoning (Final Office Action 3-7; Ans. 3-8), as well as the Examiner’s findings of fact and reasoning in response to the Appeal Brief<sup>10</sup> as set out on pages 8-10 of the Answer in the “Response to Argument” section, as our own. We add the following primarily for emphasis.

Appellants’ main argument against the Examiner’s rejection is that while the claimed invention requires optical reading by detecting changes in surface topography, “[i]t would not be clear to one of ordinary skill” whether the differences in signals in Elmasry’s method are “*merely due to deformation, i.e., surface modifications, or whether some are produced, for example, by irradiation with light*” (Br. 9; emphasis provided). Appellants also contend that “Berneth fails to provide the missing teaching or suggestion” since Berneth uses changes in birefringence for readout (*id.*).

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<sup>10</sup> No Reply Brief has been filed.

We disagree that these contentions are persuasive of reversible error for the reasons stated by the Examiner (Ans. 8-10). Notably, the Examiner ultimately found that Elmasry uses a dye “similar to the dyes of the claims and is written upon and readout using a laser”, and the “reflection differences are clearly due to the deformation of the polymeric azo dye film (i.e. a change in topography) as discussed with respect to figure 5 at 5/61-6/12.” (Ans. 8). Appellants have not disputed this finding of the Examiner, as no responsive brief has been filed.

Appellants’ arguments are also unpersuasive of reversible error because Appellants have failed to address and thus failed to identify error with the Examiner’s stated case (Br. *generally*). In this regard, Appellants’ arguments improperly focus on the teachings of the references individually instead of addressing the Examiner’s stated case. *Keller*, 642 F.2d at 426. Appellants have not directed us to any credible technical reasoning or evidence sufficient to refute the Examiner’s reasonable position of obviousness for the claimed method.

Accordingly, Appellants have not shown reversible error in the Examiner’s factual findings and obviousness analysis of claim 1 on appeal, and we affirm the Examiner’s § 103 rejections<sup>11</sup>.

#### ORDER

We affirm the Examiner’s decision.

#### TIME PERIOD

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<sup>11</sup> Since all the rejected claims stand or fall with independent claim 1 in both the first and second grounds of rejection, and the second ground of rejection only adds additional references to the first ground of rejection (Br. 6), this ground of rejection is affirmed as well.



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Application 10/089,358

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED

sld

BAYER MATERIAL SCIENCE LLC  
100 BAYER ROAD  
PITTSBURGH PA 15205